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CITESCORE 7.4

Silicon Electrochemistry: Fundamentals and Modern Applications

Guest Editor:

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Deadline for manuscript submissions:
closed (7 July 2025)

Message from the Guest Editor

Silicon is widely used in microelectronics and solar energy. In the context of a global increase in energy consumption and a reduction in energy resources, increasingly attention is being paid to the development of novel materials, devices and technologies for the use of renewable energy sources.

This Special Issue aims to analyze the current state of silicon electrochemistry and the prospects for its development in fundamental and practical terms, including an analysis of the regularities of:

- The behavior of silicon-containing electroactive ions in electrolytes;
- Changes in the physical and chemical properties of electrolytes with the addition of silicon-containing ions;
- The electroreduction of silicon-containing electroactive ions;
- Silicon electrodeposition;
- The electrochemical texturing of thin silicon films;
- The electrochemical doping of silicon with microimpurities;
- The electrochemical synthesis of composite materials based on silicon, as well as an analysis of the practical use of electrodeposited silicon in devices;
- The conversion of solar energy;
- Lithium-ion current sources;
- Other devices.